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ABSTRACT

A method for direct observation study of early peer-social and object directed behavior in humans was designed to articulate with techniques widely used in studies of social behavior of infra-human primates. Occurrence of behavior fitting the definitions of each of six categories of object behavior and nine categories of social behavior is noted once during each 15-second interval. The number of recorded intervals in a 15-minute session provides the basic scoring unit. Observer reliabilities were estimated from paired data for four observers. Thirty-eight Negro and Caucasian children, ages three through five years, were observed in 3-child play groups. Median reliabilities of .95 and .81 were obtained for object and social behavior categories respectively. (Author/CK)

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AN OBSERVATIONAL TECHNIQUE FOR PRE-SCHOOL CHILDREN[1]

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The purpose of this research was to develop an observational category system useful for the study of human peer-social behavior in the pre-school age period. The need for this research is evident from an examination of the recent literature dealing with early social development (Wright, 1960; Stevenson, 1965). The focus of investigations of early human development is on variables relating to child-rearing patterns, specifically, maternal-child relationships. Within the context of the mother-child relationship, the variables of dependency and aggression have received considerable emphasis (Sears, Maccoby, & Levin, 1957; Sears, Rau, & Alpert, 1965; Hartup, 1960, 1963; Bishop, 1951; Heathers, 1955).

While important to the generation of developmental personality theories, the emphasis on maternal-child relationship has inhibited investigation of peer experiences in the socialization process. If one accepts the notion that socialization is affected by all available stimulus objects, a primary focus on maternal relationships is entirely too narrow.

An alternative view is stated as follows: The physical requirements of the neo-natal period determine the primacy of the caretaker-child relationship during the first year of life. However, during the second year relationships with other children and object behavior in peer settings begin to exert a measurable effect on the child's social behavior. The effects of these relationships would be expected to increase with age throughout the childhood period. The plasticity of cognitive and affective systems from ages one through five years (Bloom, 1964; Hunt, 1961;

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Piaget, 1952) suggests that social behavior during this period may be strongly influenced by factors associated with peer experience. A careful study of the effects of various combinations of adults, peers, and objects on the child's early social behavior might lead to the conclusion that several alternate early environmental patterns produce essentially equivalent social behavior outcomes later in the life span.

This formulation is supported by some recent studies of social development in the rhesus monkey. For the rhesus, exposure to peers compensates to some extent for the deleterious effects of maternal deprivation on adult sexual behavior (Harlow & Harlow, 1966). Exposure in infancy to some types of physical objects also mitigates the usually dire effects of early maternal deprivation (Mason, W.A., personal communication). The evidence provided by these studies is insufficient to permit extrapolation to humans. Indeed, even for primates, the adult outcomes of maternal and substitutive environments are not identical. Moreover, the behavioral outcomes are species-specific to some extent (Preston, Baker, & Seay, 1970). However, the studies do suggest that examination of the effects of peer experience is important to understanding human socialization.

This report presents a method for direct observational study of peer-social behavior in pre-school age children. The method is based on techniques used by Harlow and his associates (Hansen, 1966; Seay, 1966; Seay, Alexander, & Harlow, 1964) in observational studies of early social behavior in infrahuman primates. The subjects are placed in a semi-naturalistic playroom with a standard set of five toys. The observational

system and standardized setting were adopted to deal with two persistent problems in observational work with young children: (1) The gross characteristics of the social and physical setting should be amenable to specification; (2) the system of making and recording observations should be measurable and reliable across observers.

The semi-naturalistic setting (Hartup, 1963) was selected in preference to either the laboratory or naturalistic setting. In the semi-naturalistic laboratory the physical objects and persons in the environment can be selected to suit experimental requirements. One can begin to describe the characteristics of this limited social and physical environment and select portions of it for systematic variation. At the same time, the physical similarities between the laboratory and the child's usual preschool habitat facilitate his adaptation to the laboratory setting.

The structure of observation and recording of data is the second problem to be considered. What behavior to observe and at what level of abstraction proves to be an extremely troublesome matter. Sears and his colleagues (Sears, Rau, & Alpert, 1965; Bishop, 1951; Smith, 1958) have chosen to include a wide range of verbal and non-verbal behavior in Behavior-Units such as "Reassurance-seeking, Positive Attention Seeking, and Indirect Verbal Aggression." Other investigators include verbatim records, comprehensive notes, and anecdotal records (Barker, 1963; Barker & Wright, 1955; Caldwell, 1969). The detailed recordings are categorized by one or several persons after data collection.

The Hansen system has several features which recommended its adaptation for use with human subjects: (1) Observation of gross body movements and

vocalizations indicated high inter-observer reliability could be obtained after a short training period; (2) Minimal references to the subject's social purposes would permit separation of low-level inferences required for interpretation of data; (3) The system had already demonstrated sensitivity to longitudinal trends and to the effects of environmental disruption with infrahuman primates (Hansen, 1966; Seay, Hansen, & Harlow, 1962); (4) Finally, use of an observational system similar to that used with infrahuman primates would raise the probability of making meaningful comparisons between existing animal and human data.

Description of Category System

The Behavior Category Observation system includes six categories of object-directed behavior and nine categories of social behavior. For object-directed behaviors, both the category and the object are recorded, since the definitions require contact between the subject and an object. For social categories the peer to whom the behavior is directed is not recorded. Only the category is recorded for social behavior, because the peer to whom it is directed is often difficult to determine. Difinitions of the behaviors included in each category and a description of the objects used in this research follow:

Object Directed Behavior Categories

1. Transport. Movement of body and object through a distance of one foot or more.

2. Sit on. Rest haunches on object.

3. Manipulate. Object must be in contact with hand. Some part of hand must move.

4. Oral Contact. Object in contact with mouth area; lips, tongue, or teeth.

5. Project. Throw or otherwise propel object with a snapping movement.

6. Embrace. Place one or both arms around object.

Objects

1. Riding Truck. A large truck 24 X 8 X 8 in. with a seat formed on top of the cab.

2. Truck. A small flat-bed model 15 X 3 X 4 in. with detachable cab.

3. Blocks. 24 - 1 1/4 in. blocks with raised pictures and designs on the sides.

4. Ball. 10 in. diameter beach ball.

5. Animal. Stuffed rabbit doll, 12 in. long

6. Self. Subject's body or clothing.

7. Other Objects. Non-standard small objects of various types contributed by subjects. Key, handkerchief, etc.

Socially Directed Categories

1. Touch. Make physical contact with another child.

2. Hit with Object. Hit or push another child with object.

3. Hit. Hit, cuff, or push another child with part of body.

4. Vocalize. Non-word vocalization.

5. Verbalize. Word or word approximation.

6. Withdraw. Movement from within to beyond one foot distance to another child.

7. Approach. Movement from beyond to within one foot distance to another child.

8. Smile. Smile or laugh.

9. Frown. Frown or cry

Procedure.--A single child is the focus of observations made during a session. Instances of observed behavior fitting the defined categories are recorded continuously by writing the category symbol for social behaviors and the category symbol with the object symbol for object-directed behaviors. Simultaneously, 15-sec. time intervals are indicated to the observer by transmission of the numbers 0-60 via an earphone connected to a tape recorder. Each behavioral observation is written on a data sheet in a numbered space corresponding to the number of the 15-sec.time interval during which it was observed. Only a single entry is recorded for each behavior category or behavior category-object regardless of its frequency or duration in a fifteen-second period. The recording only of a single instance enables the observer to run through all the categories during an interval.

The basic score for a category is the per-session score indicating the number of 15-sec. intervals for which a behavior category was observed. Per session scores may range from 0-60 for a 15 minute session.

Setting. --For the data reported in this study, the children were placed in a 10 ft. x 10 ft. playroom erected within a larger room. The standard set of objects was placed in the same position at the beginning of each session. The room was otherwise free of furniture and other objects. Observers were stationed on 30 in. stools outside one wall of the playroom, visible to subjects through an unglazed opening 1-1/2 ft. x 6 ft. located at eye level.

Reliability. --The per-session scores for each category provided by several observers for the same subject permit evaluation of observer

reliability for each category. Estimated reliabilities refer to the entire observational process, observation,categorization, and recording. In contrast, other systems (Barker & Wright, 1954; Caldwell, 1969) provide estimates for categorization reliability only, since the observational records are made by a single observer. The use of per-session scores means that the obtained reliabilities refer to the concordance on the relative number of intervals in which a behavioral category was recorded for a session by several observers. The assumption is made that there is a universe score for each category for each subject. Several independent per-session scores permit an evaluation of observer error associated with the universe score. Agreement as to the particular intervals in which the behavior occurred are not important so long as no use is made of interval data. Data for 50 sessions were obtained. Thirty-eight white and Negro children of both sexes, ages 3 - 5 years were observed. The subjects attended a Neighborhood Service Center sponsored by the poverty agency in a small town in Louisiana. The children were placed in a three-person play group with peers of the same sex and age as the subject. For each session, two observers observed the same child. Four observers, each paired with the other three for approximately the same number of sessions, contributed data to the reliability study.

Insert Table 1 about here

Observer reliabilities reported in Table 1 were obtained as follows: For each category, the product-moment correlation was obtained for each

observer by treating his scores as the X variable and the corresponding scores of the observers with whom he was paired as the Y variable. Individual correlations were subjected to the Fisher z transformation. The overall reliability estimate for each category is based on the mean z transformed to r. Where the average per-session score for a category was less than .5 per session, estimates of observer reliability would be spurious and are, therefore, not reported.

Discussion

The behavioral-observation system provides a powerful tool for use in laboratory, semi-naturalistic, and naturalistic studies of social behavior in young children. The first requirement for establishing the boundaries of usefulness of the system is the acquisition of baseline data for populations and settings to which application is intended. Baseline data would consist of patterns of behaviors as indicated by typical scores on the categories for Subjects and settings with specifiable characteristics. Included in the specifications would be age, sex, race, and socio-economic characteristics of the subject and the peer group. Number, physical characteristics, and function of the objects would also be delineated in the baseline investigations. Acquisition of baseline data based on a substantial number of observations is costly. However, these data are prerequisite to the execution of studies in which one or more changes are imposed on the object or social environment. The baseline studies provide a gage against which small sample studies may be reasonably evaluated.

Two lines of investigation utilizing the behavioral observation

system are suggested; reactivity studies and adaptation studies. The study of reactivity evaluates the short-term effects of one or more changes in the characteristics of the peer-group or the object environment on behavior included in the system. Social Characteristics amenable to manipulation include the number, age, sex, racial characteristics of the peer-partners relative to subject. In a similar fashion, the number, size and function of physical objects may be systematically manipulated.

Adaptation studies evaluate the long-term effects of the similar environmental arrangements. In these studies, a subject is exposed to particular social and object situations for a relatively long period over several weeks or months -- until behavior has stabilized.

Both reactivity and adaptation studies of early social behavior can be carried out utilizing one of the several other observational systems. One unique contribution of the present system is a conceptual foundation which permits cross-species comparison in early social development. Another important feature of this system is relative freedom from high level abstractions during the data collection process. Investigations using the present system with human subjects and those using analagous observational systems with infra-human primates should produce a comparative body of knowledge not now in existence. This information could provide a proper foundation for a developmental theory of socialization and social behavior.

Footnote

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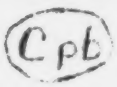
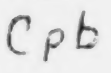
TABLE I

Reliabilities for Behavior Categories

Symbol		Description	Reliability
Non-Social Categories		(Red Pen)	
	=	Manipulate block	.96
	=	Manipulate riding truck	.87
	=	Manipulate truck	.97
	=	Manipulate ball	.97
	=	Manipulate animal	.98
	=	Manipulate object	.97
	=	Throw ball	.92
	=	Throw block	.64
	=	Embrace ball	.84
	=	Transport ball	.83
	=	Transport block	.92
	=	Sit on riding truck	.97
	=	Sit on ball	.98
	=	Manipulate self	.63
Social Categories		(Green Pen)	
	=	Hit with object	.80
	=	Hit	.81
	=	Vocalize	.88
	=	Verbalize	.94
	=	Touch	.84
	=	Approach	.81
	=	Withdraw	.69
	=	Smile	.80
	=	Frown	.80